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| APPLICATION NO.       | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------|-------------|----------------------|---------------------|------------------|
| 08/726,613            | 10/07/1996  | JAMES M. MORI        | 50184               | 9323             |
| 21874                 | 7590        | 04/21/2004           | EXAMINER            |                  |
| EDWARDS & ANGELL, LLP |             |                      | CHU, JOHN S Y       |                  |
| P.O. BOX 55874        |             |                      | ART UNIT            |                  |
| BOSTON, MA 02205      |             |                      | PAPER NUMBER        |                  |
|                       |             |                      | 1752                |                  |

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 08/726,613             | DOCANTO ET AL.      |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | John S. Chu            | 1752                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,4-15,18-20,22-27 and 47-82 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 79-82 is/are allowed.
- 6) ☒ Claim(s) 1,4-14,18-20,22-26 and 47-78 is/are rejected.
- 7) ☒ Claim(s) 15 and 27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

This Office action is in response to the reconsideration filed January 26, 2004.

#### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claims 1, 4-9, 18-20, 22-26, 47-69 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by JAGANNATHAN ET AL.

The claimed invention is drawn to a photoresist composition, an article of manufacture and a method of forming a photoresist image.

Claim 1 recites a photoresist composition comprising a polymer binder, a photoactive component and a dye compound that contains anthracene groups, said dye being a polymer wherein the polymer has a weight average molecular weight of at least about 5, 000.

Claim 16 recites a composition similar to claim 1 used in a method of forming a photoresist relief image, wherein the composition is coated on a substrate exposed and developed.

Claim 10 recites photoresist composition comprising a resin binder, a photoactive component, and a polymer dye that contains one or more polycyclic chromophores, said chromophores being selected from the group consisting of phenanthryl, acridine, quinolinyl and ring substituted quinolinyl.

Art Unit: 1752

Claim 70 recites a composition similar to claim 1 used in a method of forming a photoresist relief image, wherein the composition is coated on a substrate exposed and developed.

Claim 20 recites an article of manufacture comprising a substrate that is an integrated circuit substrate or a flat panel display having coated thereon a photoresist composition comprising a resin binder, a photoactive component and a polymeric dye that contains one or more polycyclic chromophores, said dye compound being a polymer wherein the polymer has a weight average molecular weight of at least about 5, 000.

Claim 22 recites a photoresist composition comprising a resin binder, a photoacid generator compound and a polymeric dye that contains one or more polycyclic chromophores, said dye compound being a polymer wherein the polymer has a weight average molecular weight of at least about 5,000.

Claim 50 recites a method using the compositions as recited in claims 20 and 22.

Claim 18 recites an article of manufacture comprising a polymer binder, a photoactive component and a dye that contains anthracene groups, said dye compound being a polymer wherein the polymer has a weight average molecular weight of at least about 5,000.

JAGANNATHAN ET AL discloses a polymer-bound sensitizer, which anticipates the claimed invention in column 5, Examples 4-8. The compositions in JAGANNATHAN ET AL recite the use of anthracene as one of several chromophores for the polymer-bound sensitizer, see column 3, lines 25-37 for the additional sensitizers suitable for the composition.

The arguments by applicant have been carefully considered, however the rejection is repeated for the deficiencies as stated below by a lack of showing under 37 C.F.R. 1.608(b).

The JAGANNATAN reference is a U.S. patent or U.S. patent application publication of a pending or patented application that claims the rejected invention. An affidavit or declaration is inappropriate under 37 CFR 1.131(a) when the reference is claiming the same patentable invention, see MPEP § 2306. If the reference and this application are not commonly owned, the reference can only be overcome by establishing priority of invention through interference proceedings. See MPEP Chapter 2308.01 and 2308.02 wherein a showing under 37 C.F.R. 1.608(b) is needed to overcome the 102(e).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 4-14, 18-20, 22-26, and 47-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over JAGANNATHAN ET AL

The claimed invention has been recited above and is included by reference.

JAGANNATHAN ET AL has been discussed for the disclosure of the photoresist composition having a polymer-bound sensitizer, which anticipates the claimed invention.

JAGANNATHAN ET AL lacks the explicit disclosure for the use of phenanthryl as recited in claims 10 and 70, however the use of isomeric compounds as alternative choices is conventional to the art, such that it is *prima facie* obvious to the skilled artisan to use isomers of

anthracenyl, such as phenanthryl and reasonably expect the same or similar results for deep UV absorption in a photoresist composition.

Motivation is based on the desire to have a photoresist composition, which is sensitive to the deep UV part of the spectrum without the sublimation of the sensitizer.

The arguments by applicant have been carefully considered, however the examiner restates the rejection wherein the isomeric compounds are seen as obvious over one another and thus phenanthryl can be seen as obvious over anthracene unless shown to be different by applicant through comparative data.

The arguments by applicant have been carefully considered, however the rejection is repeated for the deficiencies as stated below by a lack of showing under 37 C.F.R. 1.608(b).

The JAGANNATAN reference is a U.S. patent or U.S. patent application publication of a pending or patented application that claims the rejected invention. An affidavit or declaration is inappropriate under 37 CFR 1.131(a) when the reference is claiming the same patentable invention, see MPEP § 2306 and M.P.E.P. 715. If the reference and this application are not commonly owned, the reference can only be overcome by establishing priority of invention through interference proceedings. See MPEP Chapter 2308.01 and 2308.02 wherein a showing under 37 C.F.R. 1.608(b) is needed to overcome the 102(e).

5. Claims 15 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

None of the prior art references disclose the specified chromophore as recited in claims 15 and 17.

6. Claims 79-82 are allowed.

None of the prior art references of record disclose the claimed polymer dye compound as seen in claim 79. Rule 1.126 states that the “When claims are added, they must be numbered by the applicant consecutively beginning with the number next following the highest numbered claim previously presented...”. New claims 80-83 as added by applicant have been renumbered as claims 79-82 per Rule 1.126.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Chu whose telephone number is (571) 272-1329. The examiner can normally be reached on Monday - Friday from 9:30 am to 6:00 pm.

Application/Control Number: 08/726,613

Page 7

Art Unit: 1752

The fax phone number for this Group is (571) 273-1329.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1700.



John S. Chu  
Primary Examiner, Group 1700

J.Chu  
April 19, 2004